

## CLAIMS

1. A producibility improver for poultry, comprising a polymannose having a molecular weight distribution in which a polymannose having the molecular weights ranging from  $1.8 \times 10^3$  to  $1.8 \times 10^5$  accounts for 70% or more.
2. The producibility improver according to claim 1, further comprising a polyphenol compound.
3. The producibility improver according to claim 2, further comprising a delipidated rice bran.
4. The producibility improver according to any one of claims 1 to 3, wherein the polymannose contains a polymannose having a degree of polymerization of 30 to 40 in an amount of 25% or more.
5. The producibility improver according to any one of claims 1 to 4, wherein the polymannose has a viscosity of 130 cps or less at 5°C in a 5% by weight aqueous solution as determined by Brookfield viscometer.
6. The producibility improver according to any one of claims 1 to 5, wherein the polymannose is a polygalactomannan.
7. The producibility improver according to claim 6, wherein the polygalactomannan is an enzymatically degraded product of a substance selected

from the group consisting of guar gum, locust bean gum and tara gum.

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8. The producibility improver according to any one of claims 2 to 7, wherein the polyphenol compound is obtainable from a hydrothermally extracted fraction of a plant of the camellia family.

9. The producibility improver according to claim 8, wherein the plant of the camellia family is tea.

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10. The producibility improver according to any one of claims 2 to 7, wherein the polyphenol compound is obtainable from a hydrothermally extracted fraction of green tea.

11. The producibility improver according to any one of claims 2 to 10, wherein the polyphenol compound is at least one compound selected from the group consisting of (+)-catechin, (+)-gallocatechin, (-)-gallocatechin gallate, (-)-epicatechin, (-)-epicatechin gallate, (-)-epigallocatechin, (-)-epigallocatechin gallate, free teaflavin, teaflavin monogallate A, teaflavin monogallate B, and teaflavin digallate.

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12. The producibility improver according to claim 11, wherein the polyphenol compound comprises (-)-epigallocatechin gallate.

13. The producibility improver according to any one of claims 1 to 12, which is used for suppression of decrease in liveability of laying hens.

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14. The producibility improver according to any one of claims 1 to 12, which is used for at least any one of i) increase in each egg weight of eggs produced by laying hens; ii) increase in an amount of eggs produced per day; iii) increase in number of eggs produced; iv) increase in a weight of produced eggs; and v) improvement in a rate of egg production for laying hens.

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15. The producibility improver according to any one of claims 1 to 12, which is used for suppression of decrease in Haugh unit of eggs produced by laying hens during the storage.

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16. The producibility improver according to any one of claims 1 to 12, which is used for suppression of decrease in vitamin E content of eggs produced by laying hens during the storage.

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17. The producibility improver according to any one of claims 1 to 12, which is used for suppression of decrease in highly unsaturated fatty acid content of eggs produced by laying hens during the storage.

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18. The producibility improver according to any one of claims 1 to 12, which is used for suppression of decrease in content of a fatty acid selected from the group consisting of linoleic acid, arachidonic acid,  $\alpha$ -linolenic acid, eicosapentaenoic acid, docosapentaenoic acid, DHA and EPA in eggs produced by laying hens during the storage.

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19. The producibility improver according to any one of claims 1 to 12, which is used for suppression of decrease in liveability of edible chickens.

20. The producibility improver according to any one of claims 1 to 12, which is used for improvement in a body weight gain of edible chickens, or improvement in a weekly body weight gain of edible chickens.

21. The producibility improver according to any one of claims 1 to 12, which is used for keeping freshness of chicken meat produced by edible chickens.

22. The producibility improver according to any one of claims 1 to 12, which is used for at least one of i) suppression of increase in K value of chicken meat of edible chickens; ii) suppression of increase in TBA value of chicken meat; and iii) suppression of increase in POV value of chicken meat.

23. The producibility improver according to any one of claims 1 to 12, which is used for decrease in cholesterol content of chicken meat produced by edible chickens.

24. A method of improving producibility for laying hens or edible chicken, using the producibility improver of any one of claims 1 to 12.

25. The method of improving producibility according to claim 24, wherein decrease of liveability of laying hens is suppressed.

26. The method of improving producibility according to claim 24, which is used for at least any one of i) increase in each egg weight of eggs produced by laying hens; ii) increase in an amount of eggs produced per day; iii) increase in number of eggs produced; iv) increase in a weight of produced eggs; and v) improvement in a rate of egg production for laying hens.

27. The method of improving producibility according to claim 24, wherein decrease in Haugh unit of eggs produced by laying hens is suppressed during the storage.

28. The method of improving producibility according to claim 24, wherein decrease in vitamin E content of eggs produced by laying hens is suppressed during the storage.

29. The method of improving producibility according to claim 24, wherein decrease in highly unsaturated fatty acid content of eggs produced by laying hens is suppressed during the storage.

30. The method of improving producibility according to claim 24, wherein decrease in content of a fatty acid selected from the group consisting of linoleic acid, arachidonic acid,  $\alpha$ -linolenic acid, eicosapentaenoic acid, docosapentaenoic acid, DHA and EPA in eggs produced by laying hens is suppressed during the storage.

31. The method of improving producibility according to claim 29, wherein the

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eggs are produced from a laying hen reared with a feed which allows a highly unsaturated fatty acid in the eggs to be contained in a high content.

5 32. The method of improving producibility according to claim 30, wherein the eggs are produced from a laying hen reared with a feed which allows a fatty acid selected from the group consisting of linoleic acid, arachidonic acid,  $\alpha$ -linolenic acid, eicosapentaenoic acid, docosapentaenoic acid, DHA and EPA in the eggs to be contained in a high content.

10 33. The method of improving producibility according to claim 24, wherein decrease of liveability of edible chickens is suppressed.

15 34. The method of improving producibility according to claim 24, wherein a body weight gain of edible chickens is improved, or a weekly body weight gain of edible chickens is improved.

20 35. The method of improving producibility according to claim 24, wherein freshness of chicken meat produced by edible chickens is kept.

36. The method of improving producibility according to claim 24, which is used for at least one of i) suppression of increase in K value of chicken meat of edible chickens; ii) suppression of increase in TBA value of chicken meat; and iii) suppression of increase in POV value of chicken meat.

25 37. The method of improving producibility according to claim 24, wherein

cholesterol content of chicken meat produced by edible chickens is reduced.

5 38. The method of improving producibility according to any one of claims 25 to 32, wherein a period of addition to a supplying feed for the laying hens is at least 4 months after laying hens are housed in a poultry house.

10 39. The method of improving producibility according to any one of claims 33 to 37, wherein a period of addition to a supplying feed for the edible chickens is at latest 2 weeks before completion of rearing to the time of completion of rearing.

15 40. The method of improving producibility according to any one of claims 24 to 39, comprising feeding a mixture prepared by formulating a polymannose in an amount of 0.005 to 0.1 parts by weight and a polyphenol compound in an amount of 0.005 to 0.1 parts by weight, and in a case of formulating a delipidated rice bran, further formulating 0.05 to 0.5 parts by weight of the delipidated rice bran thereto, based on 100 parts by weight of the supplying feed.